WHAT IS CLAIMED IS:

1. A method for making an overclad optical fiber preform, comprising the steps of:

positioning an overclad tube around a preform core rod;

heating the overclad tube along the length thereof in such a way that the overclad tube collapses onto the preform core to form the overclad optical fiber preform; and

adjusting the size of a heated portion of at least one of the preform core rod and the overclad tube to improve the matching thereof prior to the collapse of the overclad tube onto the preform core rod.

2. The method as recited in claim 1, wherein the adjusting step further comprises varying the size of a heated portion of the preform core rod relative to a corresponding axial position of the overclad tube.

3. The method as recited in claim 1, wherein the adjusting step includes increasing the size of the preform core rod by reducing the axial length of at least one first portion of the preform core rod and/or decreasing the size of the preform core rod by increasing the axial length of at least one second portion of the preform core rod.

4. The method as recited in claim 1, wherein the adjusting step further comprises varying the size of a heated portion of the overclad tube relative to a corresponding axial position of the preform core rod.

5. The method as recited in claim 1, wherein the adjusting step includes increasing the size of the overclad tube by decreasing the axial length of at least one first portion of the overclad tube and/or decreasing the size of the overclad tube by increasing the axial length of at least one second portion of the overclad tube.

6. The method as recited in claim 1, further comprising the step of establishing a pressure gradient between the interior of the overclad tube and the

exterior of the overclad tube, wherein the pressure outside the overclad tube is greater than the pressure inside the overclad tube.

7. The method as recited in claim 1, further comprising the step of drawing an optical fiber from the overclad optical fiber preform.

8. The method as recited in claim 7, wherein the drawing step and the heating step are performed using the same heat source.

9. The method as recited in claim 1, wherein the positioning step further comprises positioning the overclad tube around the preform core rod in such a way that the overclad tube and the preform core rod are substantially coaxial.

10. A method for making an optical fiber, comprising the steps of:

positioning an overclad tube around a preform core rod;

establishing a pressure gradient across the overclad tube, wherein the pressure outside the overclad tube is greater than the pressure inside the overclad tube;

heating the overclad tube along the length thereof in such a way that the overclad tube collapses onto the preform core to form the overclad optical fiber preform;

adjusting the size of a heated portion of at least one of the preform core rod and the overclad tube to improve the matching thereof prior to the collapse of the overclad tube onto the preform core rod; and

drawing the optical fiber from the overclad optical fiber preform.

11. The method as recited in claim 10, wherein the adjusting step includes increasing the size of at least one first heated portion of the preform core rod relative to a corresponding axial position of the overclad tube by applying a compressive force to the preform core rod and/or decreasing the size of at least one second heated portion of the preform core rod relative to a corresponding axial position of the overclad tube by applying a drawing force to the preform core rod.

12. The method as recited in claim 10, wherein the adjusting step includes increasing the size of at least one first heated portion of the overclad tube relative to a corresponding axial position of the preform core rod by applying a compressive force to the overclad tube and/or decreasing the size of at least one second heated portion of the overclad tube relative to a corresponding axial position of the preform core rod by applying a drawing force to the overclad tube.

13. The method as recited in claim 10, wherein the drawing step and the heating step are performed using the same heat source.

14. An apparatus for making an overclad optical preform, the apparatus comprising:

a support for operably positioning a preform core rod having an overclad tube positioned therearound;

a heat source for heating along the length of the overclad tube; and

a vacuum source for establishing a pressure gradient between the outside and the inside of the overclad tube; and

wherein the support is configured to vary the size of at least one heated portion of at least one of the preform core rod and the overclad tube to improve the matching of the heated portion of the preform core rod and the overclad tube prior to the collapse of the overclad tube onto the preform core rod.

15. The apparatus as recited in claim 14, wherein the support includes a spacer configured to increase the size of the heated portion of the preform core rod by applying a compressive force to the preform core rod and/or decrease the size of the heated portion of the preform core rod by applying a drawing force to the preform core rod.

16. The apparatus as recited in claim 14, further comprising a controller for applying a compressive force and/or a drawing force to the preform core rod.

17. The apparatus as recited in claim 14, wherein the support is configured to increase the size of the heated portion of the overclad tube by applying a compressive

force to the overclad tube and/or decrease the size of the heated portion of the overclad tube by applying a drawing force to the overclad tube.

18. The apparatus as recited in claim 14, further comprising a controller for controlling the amount of compressive force and/or drawing force applied to the preform core rod and/or the overclad tube.

19. The apparatus as recited in claim 14, wherein the heat source is an optical fiber draw tower furnace.